

5

**ABSTRACT OF THE DISCLOSURE**

10 A method and a system for measuring a relative position and  
orientation of range cameras using a movement of an object within a  
scene. In general, the present invention determines the relative pose  
between two cameras by measuring a path the movement of the object  
15 makes within a scene and calculating transformation parameters based on  
these measurements. These transformation parameters are used to  
determine the relative position of each camera with respect to a base  
camera. In a preferred embodiment, the present invention also includes  
other novel features such as a data synchronization feature that uses a  
20 time offset between cameras to obtain the transformation parameters. In  
addition, the present invention includes a technique that improves the  
robustness and accuracy of solving for the transformation parameters and  
an interpolation process that interpolates between sampled points if there  
is no data at a particular instant in time. Further, the present invention  
includes a system for determining a relative position and orientation of  
range cameras using spatial movement that incorporates the method of  
the present invention.

EXPRESS MAIL CERTIFICATE UNDER 37 C.F.R. §1.10

Express Mail mailing number EK 477010376US

Date of Deposit: April 5, 2000

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Box Patent Application, Washington D.C. 20231.

By: Craig S. Fischer

Signature: 